AIR QUALITY STUDY

I-5 HOV AND TRUCK LANES PROJECT

$PM_{2.5}$ AND PM_{10} ANALYSES

07- LA-5 P.M. R45.4/R59.0
EA No. 07-2332E0

Submitted to:

State of California
Department of Transportation, District 7
100 South Main Street, Suite 100
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October 2007

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INTRODUCTION

LSA Associates, Inc. (LSA) prepared this Air Quality Technical Addendum for the Interstate 5 (I-5) High Occupancy Vehicle (HOV) and Truck Climbing Lane project in response to the United States Environmental Protection Agency (EPA) releasing new $PM_{2.5}$[1] and PM_{10}[2] hot-spot analysis requirements in its March 10, 2006, final transportation conformity rule (71 FR 12468) (Final Rule). The 2006 Final Rule supersedes the Federal Highway Administration's (FHWA) September 12, 2001, "Guidance for Qualitative Project-Level Hotspot Analysis in PM_{10} Nonattainment and Maintenance Areas." This technical addendum was conducted following the procedures and methodology provided in the "Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" (EPA/FHWA Guidance) (EPA, 2006a) developed by the EPA and the FHWA.

This $PM_{2.5}$ and PM_{10} analysis addresses the construction of the proposed project, including the following components identified in the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP): Project ID: LAE0465, In L.A./Santa Clarita on Route 5 from State Route 14 to Parker Road, HOV and Truck Lane Improvement.

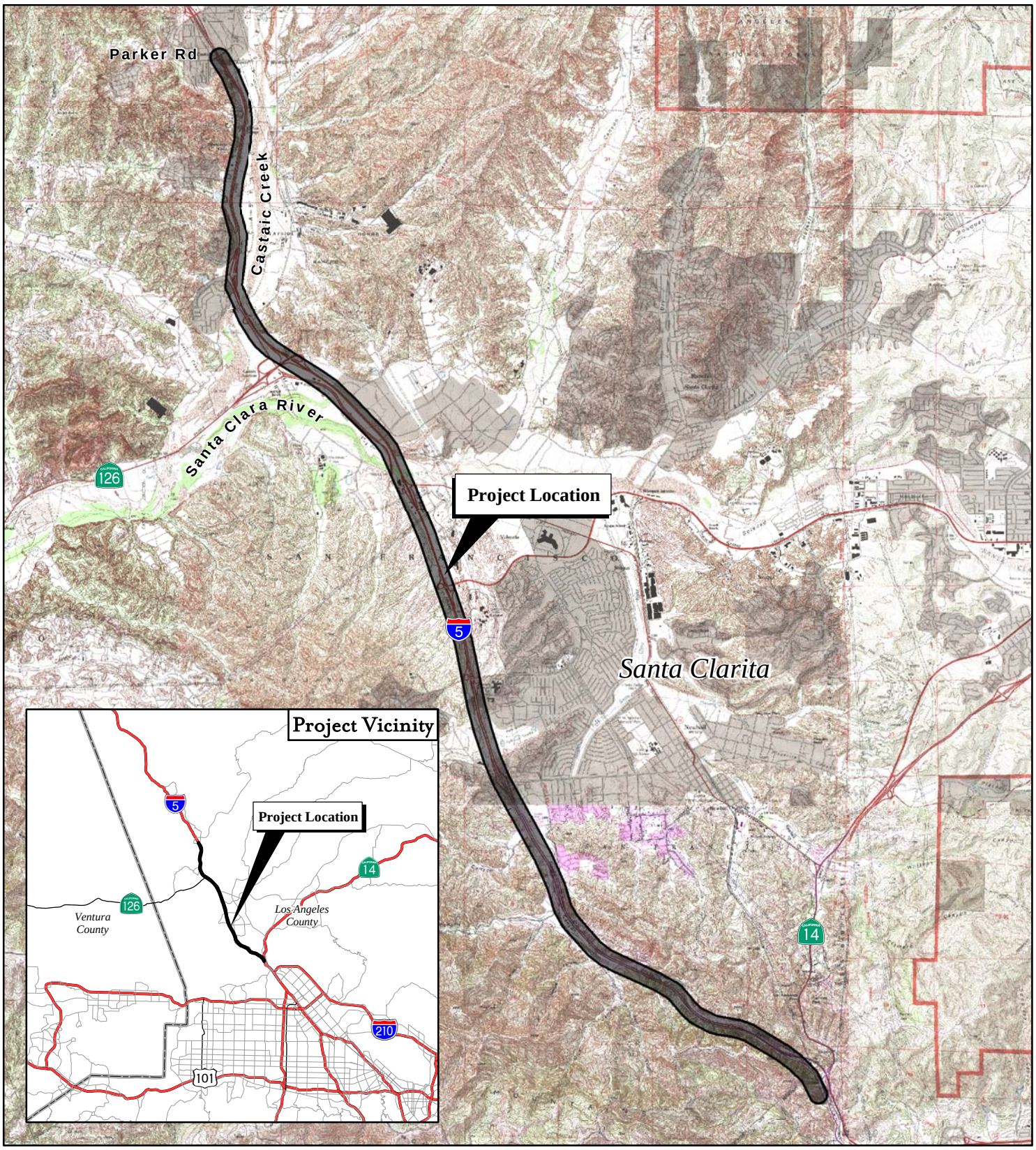
PROJECT LOCATION AND DESCRIPTION

The California Department of Transportation (Caltrans) is initiating an Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the I-5 HOV/Truck Lanes project. The project proposes to add one HOV lane in each direction on I-5 from the State Route 14 (SR-14) interchange at the southern project limit north to Parker Road, from post mile (PM) R45.4 to PM R59.0, a distance of approximately 13.6 miles. The project also proposes to add truck lanes from the SR-14 interchange to Calgrove Boulevard (northbound) and to Pico Canyon Road/Lyons Avenue (southbound). The project segment of I-5 crosses the City of Santa Clarita, the unincorporated community of Castaic and other parts of unincorporated northern Los Angeles County. The project area and the project limits are shown in Figure 1.

The purpose of the proposed I-5 project is to:

- Provide HOV lanes on the project segment of I-5, to extend the HOV facilities on I-5 south of SR-14 to the north, consistent with the Caltrans District-wide HOV Lane Program and other HOV lanes being constructed on I-5 south of the project limits
- Provide truck climbing lanes to reduce delays to other vehicles and reduce accidents caused by slower moving trucks.
- Improve the person and goods throughput on the project segment of I-5 by focusing on the provision of HOV and truck climbing lanes
- Reduce existing and forecasted traffic congestion on the project segment of I-5.

[1] Particulate matter less than 2.5 microns in diameter.
[2] Particulate matter less than 10 microns in diameter.



LSA

Legend

Project Location

0 3,750 7,500 Feet

FIGURE 1

I-5 Truck/HOV Lanes

Project Location Map

SOURCE: USGS 7.5' QUAD, CALIF.

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The project proposes to widen existing I-5 to include truck climbing lanes and HOV lanes from State Route 14 (SR-14) on the south to Parker Road on the north, a distance of approximately 13.6 miles. The proposed improvements include extending the existing HOV lanes on I-5 from SR-14 to Parker Road (a distance of approximately 13 miles), and adding truck climbing lanes from the SR-14 interchange to Calgrove Boulevard (northbound) and to Pico Canyon Road/Lyons Avenue (southbound), a distance of approximately 3-4 miles).

$PM_{2.5}$ AND PM_{10} HOT-SPOT METHODOLOGY

The new Final Rule establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. The proposed project is in the South Coast Air Basin (Basin), which has been designated as a federal nonattainment area for $PM_{2.5}$ and PM_{10}; therefore, a hot-spot analysis is required.

A hot-spot analysis is defined in the Code of Federal Regulations (CFR) (40 CFR 93.101) as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, such as for congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act (CAA) conformity requirements to support State and local air quality goals with respect to potential localized air quality impacts. When a hot-spot analysis is required, it is included within the project-level conformity determination that is made by the FHWA or the Federal Transit Administration (FTA).

Section 176(c)(1)(B) of the CAA is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

Ambient Air Quality Standards

$PM_{2.5}$ nonattainment and maintenance areas are required to attain and maintain two ambient air quality standards (AAQS):

- **24-hour Standard:** 65 micrograms per cubic meter ($\mu g/m^3$). Based on 2004–2006 monitored data, the EPA tightened the $PM_{2.5}$ 24-hour standard from 65 to 35 $\mu g/m^3$, effective December 2006. New area designations will become effective in early 2010 (EPA, 2006). Therefore, the current standard for conformity purposes is 65 $\mu g/m^3$.
- **Annual Standard:** 15.0 $\mu g/m^3$

The current 24-hour standard is based on a three-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations. The current annual standard is based on a three-year average of annual mean $PM_{2.5}$ concentrations. A $PM_{2.5}$ hot-spot analysis must consider both standards unless it is determined for a

given area in which meeting the controlling standard would ensure that CAA requirements are met for both standards. The interagency consultation process should be used to discuss how the qualitative $PM_{2.5}$ hot-spot analysis meets statutory and regulatory requirements for both $PM_{2.5}$ standards, depending on the factors that are evaluated for a given project.

PM_{10} nonattainment and maintenance areas are required to attain the following standard:

- **24-hour Standard:** 150 $\mu g/m^3$

The 24-hour PM_{10} standard is attained when the average number of exceedances in the previous three calendar years is less than or equal to 1.0. An exceedance occurs when a 24-hour concentration of 155 $\mu g/m^3$ or greater is measured at a site. The annual PM_{10} standard of 50 $\mu g/m^3$ is no longer used for determining the federal attainment status. The interagency consultation process should be used to discuss how the qualitative PM_{10} hot-spot analysis meets statutory and regulatory requirements for the PM_{10} standards, depending on the factors that are evaluated for a given project.

To meet statutory requirements, the 2006 Final Rule requires $PM_{2.5}$ and PM_{10} hot-spot analyses to be performed for Projects of Air Quality Concern (POAQC). The Final Rule states that projects not identified in 40 CFR 93.123(b)(1) as POAQC have met statutory requirements without any further hot-spot analyses (40 CFR 93.116[a]).

$PM_{2.5}$ AND PM_{10} HOT-SPOT ANALYSIS

Projects of Air Quality Concern

The first step in the hot-spot analysis is to determine whether a project meets the standard for a POAQC. The EPA specified in 40 CFR 93.123(b)(1) of the 2006 Final Rule that POAQC are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ and PM_{10} State Implementation Plan (SIP) as a localized air quality concern. The 2006 Final Rule defines the POAQC that require a $PM_{2.5}$ and PM_{10} hot-spot analysis in 40 CFR 93.123(b)(1) as:

i. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

ii. Projects affecting intersections that are at level of service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or

v. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project would meet the criteria in Items i above, as it would expand an existing facility that has a significant number of diesel vehicles. Therefore, this project is considered to be a POAQC, and a qualitative project-level $PM_{2.5}$ and PM_{10} hot-spot analysis has been conducted to assess whether the project would cause or contribute to any new localized $PM_{2.5}$ or PM_{10} violations, increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ and PM_{10} AAQS.

Types of Emissions Considered

In accordance with the EPA/FHWA Guidance, this hot-spot analysis is based only on directly emitted $PM_{2.5}$ and PM_{10} emissions. Tailpipe, brake wear, and tire wear $PM_{2.5}$ and PM_{10} emissions were considered in this hot-spot analysis.

Vehicles cause dust from paved and unpaved roads to be re-entrained, or resuspended, in the atmosphere. According to the 2006 Final Rule, road dust emissions are to be considered for PM_{10} hot-spot analyses. For $PM_{2.5}$, road dust emissions are only to be considered in hot-spot analyses if the EPA or the State air agency has made a finding that such emissions are a significant contributor to the $PM_{2.5}$ air quality problem (40 CFR 93.102(b)(3)). The EPA or the California Air Resources Board (ARB) has not yet made such a finding of significance; therefore, re-entrained $PM_{2.5}$ is not considered in this analysis.

Secondary particles formed through $PM_{2.5}$ and PM_{10} precursor emissions from a transportation project take several hours to form in the atmosphere, giving emissions time to disperse beyond the immediate project area of concern for localized analyses; therefore, they were not considered in this hot-spot analysis. Secondary emissions of $PM_{2.5}$ and PM_{10} are considered as part of the regional emission analysis prepared for the conforming RTP and Federal Transportation Improvement Program (FTIP).

According to the project schedule, no phase of construction would last more than five years, and construction-related emissions may be considered temporary; therefore, any construction-related $PM_{2.5}$ and PM_{10} emissions due to this project were not included in this hot-spot analysis. This project will comply with the PM2.5 and PM10 control measures specified in Transportation Conformity Rule: 93.117 and the South Coast Air Quality Management District (SCAQMD) Fugitive Dust Rules for fugitive dust during construction of this project. Excavation, transportation, placement, and handling of excavated soils will result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dust from earthwork operations.

Analysis Method

According to hot-spot methodology, estimates of future localized $PM_{2.5}$ and PM_{10} pollutant concentrations need to be determined. This analysis makes those estimates by extrapolating present $PM_{2.5}$ and PM_{10} pollutant concentrations from air quality data measured at monitoring stations in the vicinity of the proposed project. The data from these stations are combined with projections from the 2003 Air Quality Management Plan (AQMP) prepared by the SCAQMD and examined for trends in order to predict future conditions in the project vicinity. Additionally, the impacts of the project and the likelihood of these impacts interacting with the ambient $PM_{2.5}$ and PM_{10} levels to cause hot spots are discussed.

Data Considered

The closest air monitoring stations to the project site are the Santa Clarita and Burbank Stations. Of these monitoring stations, the Burbank Station monitors $PM_{2.5}$ concentrations. The Santa Clarita and Burbank Stations monitor PM_{10} concentrations. These monitoring stations are located in Los Angeles County located within 1500 feet to two miles from I-5. The existing truck volumes along I-5 within vicinity of these monitoring stations vary from 18,250 to 18,500 daily trips (3+ axles), similar to the 17,300 to 19,100 daily truck trips along I-5 within the project area. Therefore, the air quality concentrations monitored at this station are representative of the conditions within the project area.

Trends in Baseline $PM_{2.5}$ Emission Concentrations. The monitored $PM_{2.5}$ concentrations at the Burbank Station are shown in Table A. This data shows that, within the past six years, the federal 24-hour $PM_{2.5}$ AAQS (65 $\mu g/m^3$) was exceeded in 2001 and 2002. The annual average $PM_{2.5}$ AAQS (15 $\mu g/m^3$) at this station was exceeded in all six years; however, the concentrations have been decreasing since 2003.

Table A: Ambient $PM_{2.5}$ Monitoring Data ($\mu g/m^3$)

	2001	2002	2003	2004	2005	2006
Burbank Air Quality Monitoring Station						
3-year average 98th percentile	67	69	61	55	53	48
Exceeds federal 24-hour standard (65 $\mu g/m^3$)?	Yes	Yes	No	No	No	No
3-year National annual average	22.9	23.3	23.6	21.7	19.7	17.8
Exceeds federal annual average standard (15 $\mu g/m^3$)?	Yes	Yes	Yes	Yes	Yes	Yes

Source: EPA Web site: http://www.epa.gov/air/data/monvals.html?st~CA~California, October 2007.

While the current levels of $PM_{2.5}$ in the project vicinity are below the current federal 24-hour standard of 65 $\mu g/m^3$, they exceed the new federal standard of 35 $\mu g/m^3$ that will become effective in 2010. To estimate the future background $PM_{2.5}$ concentrations, a straight line projection was made of the three-year 98th percentile levels (the 2003 AQMP does not have any projections for $PM_{2.5}$ concentrations). The straight-line projection for the Burbank levels indicates that the $PM_{2.5}$ concentration would be at the federal 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ in approximately 2009. This trend is consistent with the ARB's plan to achieve attainment for $PM_{2.5}$ by 2010. The Initial Attainment SIP submittal to the EPA is anticipated by April 2008.

Trends in Baseline PM_{10} Emission Concentrations. The monitored PM_{10} concentrations at the Santa Clarita and Burbank Stations, shown in Table B, indicate that the federal 24-hour PM_{10} AAQS (150 $\mu g/m^3$) was not exceeded between 2001 and 2006.

While the current levels of PM_{10} in the project vicinity are below federal standards, indications are that levels in the future will decrease even further. The draft 2007 AQMP (SCAQMD) reports that

since the federal annual PM_{10} standard has been revoked, and there have been no exceedances of the 24-hour standard, the Basin is expected to be declared in attainment for the 24-hour federal PM_{10} standard since 2000.

Table B: Ambient PM_{10} Monitoring Data (µg/m3)

	2001	2002	2003	2004	2005	2006
Santa Clarita Air Quality Monitoring Station						
First Highest	62	61	72	54	55	53
Second Highest	53	56	67	52	44	46
Third Highest	53	55	67	50	42	45
Fourth Highest	51	55	65	49	40	43
No. of days above national 24-hour standard (150 µg/m^3)	0	0	0	0	0	0
Burbank Quality Monitoring Station						
First Highest	86	71	81	74	92	71
Second Highest	85	71	72	67	79	68
Third Highest	85	66	68	65	77	67
Fourth Highest	79	62	55	62	59	64
No. of days above national 24-hour standard (150 µg/m^3)	0	0	0	0	0	0

Source: ARB Web site: http://www.arb.ca.gov/adam/welcome.html, September 2007.

Transportation and Traffic Conditions

Existing, interim (2015), and future (2030) no build average daily traffic (ADT) volumes and average daily truck volumes for I-5 in the project area are shown in Table C. Although truck volumes along I-5 remain relatively consistent, the truck percentages range from 10 to 27 percent due to the large change in ADT throughout the project area. The table indicates that I-5 currently experiences more than 10,000 trucks annual average daily traffic (AADT).

The traffic analysis evaluated two future (2030) scenarios. The constrained flow conditions reflect the actual flow of traffic volumes south of the I-5/SR-14 confluence, which is constrained by the available (existing and planned) capacity for that heavily traveled section of freeway. The demand flow conditions do not include this constraint.

Table D lists the existing condition level of service (LOS) summary for the northbound and southbound I-5 freeway segments. As shown, the LOS conditions currently vary from LOS A near Parker Road to LOS F between Calgrove Road and the Truck Route Bypass along southbound I-5.

Traffic Changes Due to the Proposed Project

The proposed project is a highway improvement project that will increase the capacity of I-5 through the addition of a truck climbing land and a HOV lane. Based on the Traffic Study (Austin-Foust Associates, Inc., September 2007), the proposed project would increase the peak hour volumes along

I-5 but would not increase the daily traffic volumes. This is due to there being few alternative routes to I-5 within the project vicinity. The future traffic volumes for the 2015 Interim Conditions, the 2030 Constrained Conditions, and the 2030 Demand Conditions are shown in Tables E, F, and G, respectively.

Tables H, I, and J show the 2015 Interim, 2030 Constrained Conditions, and 2030 Demand Conditions levels of service (LOS) in the project area for the a.m. and p.m. peak hours. As shown, the proposed project would improve the LOS for the roadway segments within the project area.

Table C: Existing and No Build Average Daily Traffic Volumes (Truck Average Daily Volumes)

Roadway Link	Existing (2006)	2015 No Build	2030 No Build Constrained Conditions	2030 No Build Demand Conditions
North of Parker	65,000 (17,300)	137,000 (20,600)	207,000 (31,000)	207,000 (31,100)
Between Parker & Hasley Canyon	83,000 (17,300)	163,000 (21,200)	240,000 (28,900)	241,000 (31,300)
Between Hasley Canyon & SR-126	100,000 (17,300)	179,000 (21,500)	251,000 (26,200)	254,000 (28,000)
Between SR-126 & Rye Canyon	124,000 (18,900)	171,000 (20,600)	234,000 (24,600)	242,000 (26,600)
Between Rye Canyon & Magic Mountain	134,000 (19,000)	191,000 (22,900)	255,000 (26,800)	273,000 (30,000)
Between Magic Mountain & Valencia	156,000 (18,900)	203,000 (23,200)	263,000 (27,700)	294,000 (29,500)
Between Valencia & McBean	179,000 (19,000)	216,000 (22,700)	268,000 (28,200)	312,000 (31,200)
Between McBean & Lyons/Pico Canyon	189,000 (19,100)	226,000 (22,800)	283,000 (27,000)	322,000 (30,700)
Between Lyons/Pico Canyon & Calgrove	199,000 (19,000)	220,000 (20,900)	281,000 (26,700)	324,000 (30,700)
Between Calgrove & SR-14	202,000 (19,000)	229,000 (21,500)	290,000 (27,4000	322,000 (30,300)

Source: Austin-Foust Associates, Inc., September 2007.

Table D: Existing Conditions LOS Summary

I-5 Segment	A.M. Peak Hour			P.M. Peak Hour		
	Speed	Density	LOS	Speed	Density	LOS
Northbound						
Lake Hughes to Parker	70.0	5.2	A	70.0	9.9	A
Parker to Hasley Canyon	70.0	6.7	A	70.0	11.9	B
Hasley Canyon to SR-126	70.0	13.1	B	70.0	17.2	B
SR-126 to Rye Canyon	70.0	13.9	B	70.0	17.0	B
Rye Canyon to Magic Mountain	70.0	13.9	B	70.0	16.9	B
Magic Mountain to Valencia	70.0	18.4	C	68.5	25.4	C
Valencia to McBean	69.6	22.3	C	68.5	25.3	C
McBean to Pico	69.1	24.0	C	65.4	30.2	D
Pico to Calgrove	69.4	23.1	C	64.9	30.8	D
Calgrove to Truck Route Bypass	69.5	22.9	C	65.3	30.3	D
Truck Route Bypass to SR-14 On-Ramp	69.9	20.5	C	63.3	32.8	D
SR-14 On-Ramp to Balboa	70.0	18.3	C	68.0	26.2	D
Southbound						
Lake Hughes to Parker	70.0	7.0	A	70.0	8.9	A
Parker to Hasley Canyon	70.0	9.5	A	70.0	10.4	A
Hasley Canyon to SR-126	70.0	9.1	A	70.0	12.7	B
SR-126 to Rye Canyon	70.0	14.2	B	70.0	17.3	B
Rye Canyon to Magic Mountain	70.0	17.4	B	69.6	22.3	C
Magic Mountain to Valencia	70.0	19.5	C	68.8	24.7	C
Valencia to McBean	69.1	24.1	C	64.7	31.1	D
McBean to Pico	69.3	23.6	C	67.4	27.2	D
Pico to Calgrove	61.1	35.5	E	58.6	38.3	E
Calgrove to Truck Route Bypass	<53.3	>45.0	F	<53.3	>45.0	F
Truck Route Bypass to SR-14 On-Ramp	70.0	19.3	C	70.0	19.6	C
SR-14 On-Ramp to Balboa	70.0	24.7	C	69.3	23.4	C

Source: Austin-Foust Associates, Inc. September 2007.

Note: Density = vehicles per mile per lane.

Table E: 2015 with Project Daily Traffic Volumes (Truck Average Daily Volumes)

Roadway Link	2015 Build	Change from No Build
North of Parker	137,000 (20,600)	0 (0)
Between Parker & Hasley Canyon	163,000 (21,200)	0 (0)
Between Hasley Canyon & SR-126	179,000 (21,500)	0 (0)
Between SR-126 & Rye Canyon	171,000 (20,600)	0 (0)
Between Rye Canyon & Magic Mountain	191,000 (22,900)	0 (0)
Between Magic Mountain & Valencia	203,000 (23,200)	0 (0)
Between Valencia & McBean	216,000 (22,700)	0 (0)
Between McBean & Lyons/Pico Canyon	226,000 (22,800)	0 (0)
Between Lyons/Pico Canyon & Calgrove	220,000 (20,800)	0 (0)
Between Calgrove & SR-14	229,000 (21,600)	0 (0)

Source: Austin-Foust Associates, Inc., September 2007.

Table F: 2030 Constrained Conditions with Project Daily Traffic Volumes (Truck Average Daily Volumes)

Roadway Link	2030 Build Constrained Conditions	Change from No Build
North of Parker	207,000 (31,000)	0 (0)
Between Parker & Hasley Canyon	240,000 (28,900)	0 (0)
Between Hasley Canyon & SR-126	251,000 (26,200)	0 (0)
Between SR-126 & Rye Canyon	234,000 (24,600)	0 (0)
Between Rye Canyon & Magic Mountain	255,000 (26,800)	0 (0)
Between Magic Mountain & Valencia	263,000 (27,700)	0 (0)
Between Valencia & McBean	268,000 (28,200)	0 (0)
Between McBean & Lyons/Pico Canyon	283,000 (27,000)	0 (0)
Between Lyons/Pico Canyon & Calgrove	281,000 (26,900)	0 (0)
Between Calgrove & SR-14	290,000 (27,200)	0 (0)

Source: Austin-Foust Associates, Inc., September 2007.

Table G: 2030 Demand Conditions with Project Daily Traffic Volumes (Truck Average Daily Volumes)

Roadway Link	2030 Build Demand Conditions	Change from No Build
North of Parker	207,000 (31,100)	0 (0)
Between Parker & Hasley Canyon	241,000 (31,300)	0 (0)
Between Hasley Canyon & SR-126	254,000 (28,000)	0 (0)
Between SR-126 & Rye Canyon	242,000 (26,600)	0 (0)
Between Rye Canyon & Magic Mountain	273,000 (30,000)	0 (0)
Between Magic Mountain & Valencia	294,000 (29,500)	0 (0)
Between Valencia & McBean	312,000 (31,200)	0 (0)
Between McBean & Lyons/Pico Canyon	322,000 (30,700)	0 (0)
Between Lyons/Pico Canyon & Calgrove	324,000 (30,700)	0 (0)
Between Calgrove & SR-14	322,000 (30,500)	0 (0)

Source: Austin-Foust Associates, Inc., September 2007.

Table H: 2015 LOS Summary

I-5 Segment	A.M. Peak Hour		P.M. Peak Hour	
	No Build LOS	Build LOS	No Build LOS	Build LOS
Northbound				
Lake Hughes to Parker	B	B	C	C
Parker to Hasley Canyon	B	A	C	C
Hasley Canyon to SR-126	C	B	D	C
SR-126 to Rye Canyon	C	C	C	C
Rye Canyon to Magic Mountain	C	C	C	C
Magic Mountain to Valencia	D	C	D	C
Valencia to McBean	D	C	D	C
McBean to Pico	D	C	D	C
Pico to Calgrove	D	C	D	C
Calgrove to Truck Route Bypass	C	B	D	C
Truck Route Bypass to SR-14 On-Ramp	C	B	C	B
SR-14 On-Ramp to Balboa	C	B	D	C
Southbound				
Lake Hughes to Parker	B	B	B	B
Parker to Hasley Canyon	C	B	C	B
Hasley Canyon to SR-126	C	B	D	B
SR-126 to Rye Canyon	C	B	D	B
Rye Canyon to Magic Mountain	C	B	E	B
Magic Mountain to Valencia	C	C	E	C
Valencia to McBean	D	B	F	B
McBean to Pico	C	C	E	C
Pico to Calgrove	E	C	F	C
Calgrove to Truck Route Bypass	F	C	F	C
Truck Route Bypass to SR-14 On-Ramp	C	B	D	B
SR-14 On-Ramp to Balboa	C	C	C	C

Source: Austin-Foust Associates, Inc. September 2007.

Table I: 2030 Constrained Conditions LOS Summary

I-5 Segment	A.M. Peak Hour		P.M. Peak Hour	
	No Build LOS	Build LOS	No Build LOS	Build LOS
Northbound				
Lake Hughes to Parker	B	B	D	D
Parker to Hasley Canyon	C	B	E	D
Hasley Canyon to SR-126	D	C	F	D
SR-126 to Rye Canyon	D	C	E	C
Rye Canyon to Magic Mountain	D	C	E	C
Magic Mountain to Valencia	D	C	E	D
Valencia to McBean	E	C	E	D
McBean to Pico	E	D	F	D
Pico to Calgrove	D	C	E	D
Calgrove to Truck Route Bypass	D	C	E	C
Truck Route Bypass to SR-14 On-Ramp	C	B	E	D
SR-14 On-Ramp to Balboa	C	B	D	C
Southbound				
Lake Hughes to Parker	C	C	D	D
Parker to Hasley Canyon	D	C	E	C
Hasley Canyon to SR-126	D	C	F	D
SR-126 to Rye Canyon	D	C	F	D
Rye Canyon to Magic Mountain	D	C	F	E
Magic Mountain to Valencia	E	D	F	E
Valencia to McBean	F	C	F	D
McBean to Pico	E	D	F	E
Pico to Calgrove	F	C	F	D
Calgrove to Truck Route Bypass	F	C	F	D
Truck Route Bypass to SR-14 On-Ramp	C	B	D	C
SR-14 On-Ramp to Balboa	D	C	E	C

Source: Austin-Foust Associates, Inc. September 2007.

Table J: 2030 Demand Conditions LOS Summary

I-5 Segment	A.M. Peak Hour		P.M. Peak Hour	
	No Build LOS	Build LOS	No Build LOS	Build LOS
Northbound				
Lake Hughes to Parker	C	C	E	E
Parker to Hasley Canyon	C	B	F	D
Hasley Canyon to SR-126	D	C	F	D
SR-126 to Rye Canyon	D	C	F	D
Rye Canyon to Magic Mountain	D	C	F	D
Magic Mountain to Valencia	E	D	F	E
Valencia to McBean	F	D	F	E
McBean to Pico	F	E	F	F
Pico to Calgrove	F	E	F	F
Calgrove to Truck Route Bypass	F	D	F	E
Truck Route Bypass to SR-14 On-Ramp	E	C	F	E
SR-14 On-Ramp to Balboa	D	C	F	D
Southbound				
Lake Hughes to Parker	C	C	D	D
Parker to Hasley Canyon	D	C	E	D
Hasley Canyon to SR-126	E	D	F	E
SR-126 to Rye Canyon	E	D	F	E
Rye Canyon to Magic Mountain	F	D	F	F
Magic Mountain to Valencia	F	D	F	F
Valencia to McBean	F	D	F	F
McBean to Pico	F	E	F	F
Pico to Calgrove	F	D	F	F
Calgrove to Truck Route Bypass	F	D	F	F
Truck Route Bypass to SR-14 On-Ramp	D	C	F	D
SR-14 On-Ramp to Balboa	F	D	F	E

Source: Austin-Foust Associates, Inc. September 2007.

Daily Vehicle Emission Changes Due to the Proposed Project

The traffic study (Austin-Foust Associates, Inc., September 2007) calculated the daily traffic volumes and vehicle speeds for the a.m., p.m., and off-peak hour traffic conditions for each of the I-5 freeway segments within the project area. This traffic data, in conjunction with the EMFAC2007 emission model, was used to calculate the $PM_{2.5}$ and PM_{10} exhaust, tire wear, and brake wear emissions for each of the traffic scenarios. EMFAC2007 does not estimate road dust emissions; therefore, the emission rates listed in Tables A9-9-B-1 and A9-9-C-1of the SCAQMD CEQA Air Quality Handbook (April 1993) were used to calculated the road dust PM_{10} emissions. There are no established methods for estimating the proposed project's $PM_{2.5}$ road dust emissions. The exhaust and dust emissions generated along the proposed project alignment are listed in Tables K and L for $PM_{2.5}$ and PM_{10}, respectively. As shown, implementation of the proposed project would reduce the total $PM_{2.5}$ and PM_{10} emissions generated along the proposed project's segment of I-5. The reduction in emissions is due to the increase in average vehicle speeds and the corresponding reduction in exhaust emission rates. The tire wear, brake wear, and road dust emissions are VMT dependent and not affected by vehicle speeds. Therefore, the proposed project will not reduce these emissions. The results of the modeling are included in Appendix A.

Table K: Daily $PM_{2.5}$ Emissions (pounds per day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Total	Change from No Build
Existing	163.56	13.03	23.40	199.99	-
2015 No Build	155.48	16.83	30.96	203.27	-
2015 Build	132.24	16.83	30.96	180.03	-23.24
2030 No Build Constrained	207.11	22.22	40.94	270.27	-
2030 Build Constrained	136.43	22.22	40.94	199.60	-70.67
2030 No Build Demand	279.63	24.14	44.47	348.24	-
2030 Build Demand	163.48	24.14	44.47	232.09	-116.15

Source: LSA Associates, Inc., October 2007.

Table L: Daily PM_{10} Emissions (pounds per day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Road Dust	Total	Change from No Build
Existing	328.10	51.84	65.17	6,951.41	7,396.52	-
2015 No Build	241.95	67.01	85.37	8,131.12	8,525.44	-
2015 Build	217.56	67.01	85.37	8,131.12	8,501.06	-24.38
2030 No Build Constrained	241.63	88.90	112.82	10,652.79	11,096.13	-
2030 Build Constrained	173.99	88.90	112.82	10,652.79	11,028.49	-67.64
2030 No Build Demand	320.27	96.57	122.55	11,575.07	12,114.46	-
2030 Build Demand	202.40	96.57	122.55	11,575.07	11,996.59	-117.87

Source: LSA Associates, Inc., October 2007.

CONCLUSION

Transportation conformity is required under Section 176(c) of the CAA to ensure that federally supported highway and transit project activities are consistent with the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant AAQS. As required by the 2006 Final Rule, this qualitative $PM_{2.5}$ and PM_{10} hot-spot analysis demonstrates that this project meets the CAA conformity requirements to support State and local air quality goals with respect to potential localized air quality impacts.

It is not expected that changes to $PM_{2.5}$ and PM_{10} emissions levels associated with the proposed project would result in new violations of the federal air quality standards for the following reasons:

- The proposed project would not increase the daily traffic volumes along I-5 within the project vicinity.
- The ambient PM_{10} concentrations have not exceeded the 24-hour or annual federal standard within the past six years.
- Based on the local monitoring data, the annual average $PM_{2.5}$ concentrations within the project area would be reduced to below the federal standard by 2010.
- By 2030 the roadway links within the proposed project area will be operating, during the p.m. peak hour, at LOS D through F without improvements. The proposed build alternatives would improve the LOS to C through F.
- The proposed project would reduce the total $PM_{2.5}$ and PM_{10} exhaust and dust emissions generated along the proposed project alignment when compared to the no project conditions.

For these reasons, future new or worsened $PM_{2.5}$ and PM_{10} violations of any standards are not anticipated; therefore, the project meets the conformity hot-spot requirements in 40 CFR 93-116 and 93-123 for both $PM_{2.5}$ and PM_{10}.

REFERENCES

United States Environmental Protection Agency (EPA). 2006. “Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas” (EPA 420-B-06-902, March 2006).

United States Environmental Protection Agency (EPA). 2006. Final Revisions to the National Ambient Air Quality Standards for Particulate Pollution (Particulate Matter). EPA Web site: www.epa.gov/oar/particulatepollution/naaqsrev2006.html, accessed on March 19, 2007.

Austin-Foust Associates, Inc., I-5 PA&ED HOV & Truck Lanes – SR-14 to Parker Road, Traffic Study, September 2007.

APPENDIX A

PM2.5 AND PM10 EMISSION CALCULATIONS

I-5 HOV/Truck Lane PM2.5 and PM10 Emissions

Existing Conditions

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	3.63	18.73	9.16	13.42	5.95	11.78	11.62	11.49	16.75	61.01	163.56
PM2.5 Tire Wear	0.24	1.36	0.72	1.11	0.51	1.05	1.07	1.03	1.65	4.29	13.03
PM2.5 Brake Wear	0.36	2.20	1.21	1.91	0.89	1.89	1.97	1.89	3.07	8.02	23.40
PM10 Exhaust	9.10	45.04	21.24	29.97	12.97	23.64	21.75	21.62	30.71	112.04	328.10
PM10 Tire Wear	0.94	5.40	2.86	4.40	2.01	4.18	4.28	4.12	6.56	17.10	51.84
PM10 Brake Wear	1.07	6.40	3.47	5.41	2.49	5.26	5.44	5.22	8.42	21.97	65.17
Road Dust	205.80	1015.93	477.79	677.76	295.65	555.41	522.00	519.05	749.00	1933.02	6951.41
Total PM2.5	4.22	22.29	11.10	16.44	7.34	14.73	14.66	14.41	21.47	73.32	199.99
Total PM10	216.91	1072.76	505.36	717.54	313.13	588.49	553.47	550.01	794.70	2084.14	7396.52

2015 No Build

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	3.73	19.89	9.64	11.66	5.74	10.57	10.73	10.46	14.21	58.85	155.48
PM2.5 Tire Wear	0.44	2.40	1.19	1.45	0.69	1.34	1.29	1.34	1.82	4.87	16.83
PM2.5 Brake Wear	0.76	4.31	2.17	2.64	1.26	2.46	2.38	2.49	3.40	9.09	30.96
PM10 Exhaust	7.05	33.24	15.44	19.12	9.17	17.01	16.26	15.75	21.29	87.62	241.95
PM10 Tire Wear	1.73	9.56	4.74	5.76	2.76	5.35	5.15	5.33	7.25	19.38	67.01
PM10 Brake Wear	2.13	12.01	6.01	7.30	3.49	6.80	6.57	6.84	9.31	24.91	85.37
Road Dust	264.43	1284.20	595.34	726.51	346.06	661.82	625.05	614.47	824.90	2188.35	8131.12
Total PM2.5	4.92	26.61	13.00	15.75	7.70	14.37	14.40	14.29	19.42	72.80	203.27
Total PM10	275.34	1339.01	621.52	758.69	361.49	690.98	653.03	642.39	862.75	2320.25	8525.44

2015 Build

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	3.73	19.71	9.44	11.63	5.61	10.79	10.19	10.25	14.20	36.69	132.24
PM2.5 Tire Wear	0.44	2.40	1.19	1.45	0.69	1.34	1.29	1.34	1.82	4.87	16.83
PM2.5 Brake Wear	0.76	4.31	2.17	2.64	1.26	2.46	2.38	2.49	3.40	9.09	30.96
PM10 Exhaust	7.05	35.34	16.34	19.89	9.24	18.02	16.77	16.17	23.00	55.74	217.56
PM10 Tire Wear	1.73	9.56	4.74	5.76	2.76	5.35	5.15	5.33	7.25	19.38	67.01
PM10 Brake Wear	2.13	12.01	6.01	7.30	3.49	6.80	6.57	6.84	9.31	24.91	85.37
Road Dust	264.43	1284.20	595.34	726.51	346.06	661.82	625.05	614.47	824.90	2188.35	8131.12
Total PM2.5	4.92	26.43	12.80	15.72	7.56	14.59	13.87	14.08	19.42	50.64	180.03
Total PM10	275.34	1341.11	622.41	759.47	361.55	691.99	653.54	642.81	864.46	2288.38	8501.06

2030 No Build Constrained

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	4.22	23.03	11.20	12.98	6.23	12.59	13.09	12.71	17.00	94.07	207.11
PM2.5 Tire Wear	0.66	3.52	1.65	1.96	0.92	1.73	1.61	1.67	2.33	6.17	22.22
PM2.5 Brake Wear	1.14	6.35	3.04	3.61	1.69	3.19	2.95	3.12	4.34	11.51	40.94
PM10 Exhaust	5.58	28.76	13.72	16.20	7.56	14.96	15.43	14.78	19.84	104.80	241.63
PM10 Tire Wear	2.63	14.09	6.61	7.85	3.67	6.94	6.43	6.70	9.30	24.67	88.90
PM10 Brake Wear	3.22	17.65	8.39	9.96	4.65	8.80	8.15	8.56	11.89	31.55	112.82
Road Dust	398.20	1855.24	794.77	948.23	442.76	838.58	776.27	760.40	1053.77	2784.56	10652.79
Total PM2.5	6.02	32.90	15.90	18.56	8.84	17.51	17.65	17.50	23.66	111.74	270.27
Total PM10	409.64	1915.74	823.50	982.24	458.64	869.27	806.27	790.43	1094.81	2945.59	11096.13

2030 Build Constrained

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	4.22	21.39	10.32	12.32	5.85	10.76	10.32	10.58	13.50	37.18	136.43
PM2.5 Tire Wear	0.66	3.52	1.65	1.96	0.92	1.73	1.61	1.67	2.33	6.17	22.22
PM2.5 Brake Wear	1.14	6.35	3.04	3.61	1.69	3.19	2.95	3.12	4.34	11.51	40.94
PM10 Exhaust	5.58	28.57	13.28	15.91	7.44	13.89	13.09	12.96	17.73	45.54	173.99
PM10 Tire Wear	2.63	14.09	6.61	7.85	3.67	6.94	6.43	6.70	9.30	24.67	88.90
PM10 Brake Wear	3.22	17.65	8.39	9.96	4.65	8.80	8.15	8.56	11.89	31.55	112.82
Road Dust	398.20	1855.24	794.77	948.23	442.76	838.58	776.27	760.40	1053.77	2784.56	10652.79
Total PM2.5	6.02	31.26	15.02	17.90	8.46	15.68	14.88	15.37	20.16	54.85	199.60
Total PM10	409.64	1915.55	823.06	981.96	458.51	868.20	803.94	788.61	1092.70	2886.33	11028.49

2030 No Build Demand

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	4.27	24.69	12.09	14.40	8.09	18.32	20.13	21.51	29.52	126.61	279.63
PM2.5 Tire Wear	0.66	3.56	1.68	2.04	0.98	1.93	1.86	1.90	2.68	6.84	24.14
PM2.5 Brake Wear	1.14	6.38	3.08	3.73	1.81	3.56	3.44	3.55	5.00	12.78	44.47
PM10 Exhaust	5.67	30.71	14.69	17.57	9.58	21.04	22.78	24.30	33.38	140.55	320.27
PM10 Tire Wear	2.63	14.22	6.72	8.15	3.94	7.73	7.46	7.62	10.72	27.38	96.57
PM10 Brake Wear	3.22	17.76	8.50	10.31	4.98	9.82	9.47	9.74	13.71	35.03	122.55
Road Dust	399.27	1908.04	820.40	997.36	480.52	921.81	888.14	864.75	1212.46	3082.34	11575.07
Total PM2.5	6.07	34.62	16.85	20.17	10.88	23.81	25.44	26.97	37.20	146.23	348.24
Total PM10	410.80	1970.73	850.31	1033.39	499.02	960.40	927.84	906.40	1270.27	3285.29	12114.46

2030 Build Demand

Segment	1	2	3	4	5	6	7	8	9	10	Total
Length	0.5	2.4	1.1	1.4	0.6	1.1	1.0	1.0	1.4	3.6	14.10
PM2.5 Exhaust	4.27	21.86	10.41	13.13	6.50	13.40	12.63	14.16	16.75	50.37	163.48
PM2.5 Tire Wear	0.66	3.56	1.68	2.04	0.98	1.93	1.86	1.90	2.68	6.84	24.14
PM2.5 Brake Wear	1.14	6.38	3.08	3.73	1.81	3.56	3.44	3.55	5.00	12.78	44.47
PM10 Exhaust	5.67	29.16	13.40	16.79	8.18	16.77	15.48	16.64	20.83	59.47	202.40
PM10 Tire Wear	2.63	14.22	6.72	8.15	3.94	7.73	7.46	7.62	10.72	27.38	96.57
PM10 Brake Wear	3.22	17.76	8.50	10.31	4.98	9.82	9.47	9.74	13.71	35.03	122.55
Road Dust	399.27	1908.04	820.40	997.36	480.52	921.81	888.14	864.75	1212.46	3082.34	11575.07
Total PM2.5	6.07	31.79	15.17	18.90	9.29	18.90	17.93	19.62	24.43	69.99	232.09
Total PM10	410.80	1969.18	849.02	1032.61	497.62	956.13	920.54	898.74	1257.73	3204.21	11996.59